

U.S.S.N. 10/022,881

8

99-377/009774 (BOE 0274 PA)

REMARKS**Introductory comments:**

Claims 1-5, 9-13 and 17-22 are pending in the application. The Applicant respectfully requests reconsideration of claims 1-5, 9-13 and 17-22. The claims have been rejected under 35 U.S.C. 102(b) as anticipated and under 35 U.S.C. 103(a) as obvious. The following includes responses to these rejections.

In response to the § 102(b) claim rejections:

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by *Inaba* (U.S. Patent No. 4,491,401). According to the Office Action, *Inaba* teaches an iris comprising a stator assembly (blade casing front annular member or blade casing front annular member and back annular member) 3/103 or 103 with 101 comprising a frame coupled to an electrically wound substantially annular magnetic core 12/112; a rotor (actuator ring) 5/105 rotatably coupled to the substantially annular magnetic core and defining a channel O. *Inaba* allegedly includes a diaphragm coupled to the stator comprises a plurality of diaphragm leaves 6/106 pivotally arranged to form an adjustable aperture substantially concentric with the channel. A first portion 8/108 of at least one of said plurality of leaves allegedly extends from said diaphragm and is coupled to the stator. A second portion 9/109 of another of said leaves extends, according to the Office Action, from said diaphragm and is coupled to the rotor. The Office Action asserts that while each blade 6/106 in the *Inaba* reference contains both 8/108 and 9/109 any one blade may read on the claimed at least one of the plurality, while any of the other blades can read on the

U.S.S.N. 10/022,881

9

99-377/009774 (BOE 0274 PA)

claimed another of said plurality of leaves. A sensor 19 detects aperture diameter data so that actuator 38 provides electrical current through windings.

In response to this rejection, Applicant amends claim 1 to include: "said rotor comprising an annular member comprising an upper surface and a lower surface and a common edge, said rotor further comprising a plurality of magnets coupled to said upper surface and defining at least one opening in said lower surface" and "such that said second portion (of the diaphragm) fits within said at least one opening." These amendments are made in accordance with Figures 3 and 4 and paragraph [0030]. No new matter has been added. The *Inaba* reference does not disclose or suggest that the rotor includes magnets, and therefore it does not anticipate claim 1.

With regard to the rejections under 35 U.S.C. §102, the Applicant submits that independent claim 1, as amended, is novel notwithstanding the *Inaba* reference because the present claims and the prior art differ. In particular, claim 1 requires a rotor annular member having a plurality of magnets coupled to an upper surface thereof, which the *Inaba* reference does not disclose or suggest. The *Inaba* reference discloses an electrically controlled diaphragm device. Further, the *Inaba* reference is concerned with driving an actuator ring (5) with small elastic rollers 16. (Column 4, lines 21-22.) Importantly, in all instances in the *Inaba* reference, the actuator ring (5) does not include magnets that cause the actuator to rotate.

In contrast, the present invention is particularly well-suited for directly controlling a diaphragm. More specifically, the present system and method can be advantageously used to almost immediately adjust a diaphragm aperture in

U.S.S.N. 10/022,881

10

99-377/009774 (BOE 0274 PA)

response to minimal amounts of energy because the rotor moves as the magnets move and not in response to movements of elastic rollers as does the *Inaba* system.

Therefore because *Inaba* does not teach all the elements of claim 1 or equivalents therefore, claim 1 is believed to be patentable. Dependant claims 2-3 are also believed to be allowable for at least this reason.

In response to the § 103(a) claim rejections:

Claims 1-5, 9-13, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806). Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806) as applied to claims 1-5, 9-13, and 17-19, and further in view of *Hoesterey* (U.S. Patent No. 4,034,949) or *Prince* (U.S. Patent No. 4,050,085). Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806) as applied to claims 1-5, 9-13, and 17-19, and further in view of *Suzuki* (U.S. Patent No. 4,378,146). Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806) as applied to claims 1-5, 9-13, and 17-19, and further in view of *Scruggs* (U.S. Patent No. 3,876,008) or in view of *Bellows* (U.S. Patent No. 4,790,194).

According to the Office Action, claims 1-5, 9-13, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806). The Office Action alleges that *Inaba* teaches the salient features of the claimed invention except for winding on the magnetic core.

U.S.S.N. 10/022,881

11

99-377/009774 (BOE 0274 PA)

The Office Action asserts that *Inaba* teaches that the motor configuration described in the detailed description and a hollow motor formed in a hollow shape similar to the shape of the diaphragm body (col. 1, lines 52-53) is a known equivalent.

The Office action further alleges that *Devenyi* discloses a torque motor having an annular, cylindrically symmetric stator and rotor. The stator 30 includes a frame and multiple annular magnet members 32 (See Figure 6). The annular magnet members comprise a plurality of magnets mounted on various portions (or annular elements) of the annular stator. (See Figure The stator frame comprises an inner wall (first annular member) and an outer wall (second outer wall). According to the Office Action, the base of the stator functions as a sidewall. The rotor 22 is rotatably coupled to the annular magnet member 32 and defines a channel 68. Also according to the Office Action, the device of *Devenyi* further comprises a diaphragm coupled to the stator via pin 65 and to the rotor via pin 64. The diaphragm includes leaves 63 pivotally arranged to form an adjustable aperture concentric with the channel. The Office action goes on to allege that *Devenyi* also discloses a light sensor 72, sensor electronics 76 and a motor controller (actuator) 80 for detecting the light intensity passing through the aperture.

In response to the rejection of claims 1-5, 9-13, and 17-19 under 35 U.S.C. 103(a) over *Inaba* in view of *Devenyi*, Applicant amends claims 1, 9, and 19 to include: "said rotor comprising an annular member comprising an upper surface and a lower surface and a common edge, said rotor further comprising a plurality of magnets coupled to said upper surface, said annular member defining at least one opening in said lower surface" and "such that said second portion (of the diaphragm) fits within

U.S.S.N. 10/022,881

12

99-377/009774 (BOE 0274 PA)

said at least one opening." These amendments are made in accordance with Figures 3 and 4 and paragraph [0030].

Neither *Inaba* nor *Devenyi* include a rotor annular member having a plurality of magnets coupled to an upper surface thereof or any equivalents. As discussed above, *Inaba* includes an actuator ring (5) moving in response to control of elastic rollers 16 and not as a function of annular member mounted rotor magnets as included in the amended claims. These elastic rollers are subject to wear such that diaphragm response efficiency may be reduced due to friction. In contrast, the Applicant claims a rotor annular member having magnets coupled to an upper surface thereof so that the rotor annular member will rotate without intervening components (such as rollers) or contact with other components, as it is surrounded by the stator.

Devenyi includes a stator and rotor rotating on an external side of the stator. The *Devenyi* rotor includes problems typical in the art similar to those discussed above regarding *Inaba*. For example, objects contacting the external rotor may impede or reduce the efficiency of rotor control and diaphragm response efficiency. Whereas, the rotor claimed by the Applicant does not have the same shortfalls as *Inaba* or *Devenyi* as it is surrounded by the stator and does not require any intervening components for operation.

Therefore, the present invention is believed to be patentable because *Inaba* or *Devenyi* either alone or in combination do not include an annular rotor having magnet. For at least the same reasons, dependent claims 4, 5, 10-13, 17 - 18, and 20 - 22 are also novel and non-obvious.

U.S.S.N. 10/022,881

13

99-377/009774 (BOE 0274 PA)

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806) as applied to claims 1-5, 9-13, and 17-19, and further in view of *Hoesterey* (U.S. Patent No. 4,034,949) or *Prince* (U.S. Patent No. 4,050,085). Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806) as applied to claims 1-5, 9-13, and 17-19, and further in view of in view of *Suzuki* (U.S. Patent No. 4,378,146). Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaba* (U.S. Patent No. 4,491,401) in view of *Devenyi* (US Patent 5,955,806) as applied to claims 1-5, 9-13, and 17-19, and further in view of in view of *Scruggs* (U.S. Patent No. 3,876,008) or in view of *Bellows* (U.S. Patent No. 4,790,194).

As mentioned above, claims 20-22 depend from the amended claim 19 and are believed to be allowable for at least this reason, i.e. because the references either alone or in combination do not disclose or suggest an annular rotor including magnets mounted to an upper surface thereof. As discussed regarding the claim 1, 9, and 19 rejections, the claimed configuration is an improvement over the prior art, in that, among other things, it reduces actual and possible loss of efficiency due to friction caused by components contacting the rotor.

In view of the aforementioned remarks, it is respectfully submitted that all pending claims are in a condition for allowance. A notice of allowability is therefore respectfully solicited. Please charge any fees required in the filing of this amendment to Deposit Account 50-0476.

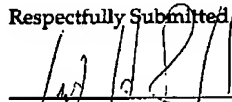
U.S.S.N. 10/022,881

14

99-377/009774 (BOE 0274 PA)

The Examiner is invited to contact the undersigned at (248) 223-9500 if any unresolved matters remain.

Respectfully Submitted,



Justin H. Purcell, Reg. No. 53,493
ARTZ & ARTZ, PC
28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

Dated: November 22, 2004